

IN THE CLAIMS:

Please cancel claims 5 and 18 without prejudice and amend claims 1, 6, 7, 8, 9, 11, 12, 13 and 17 as follows:

C¹ 1. (currently amended) A solid state p-n heterojunction ~~comprising an electron conductor~~ consisting of a n-type semiconductor in the solid state ~~and, a hole conductor~~ p-type semiconductor and ~~of further comprising~~ a sensitizing semiconductor, said sensitizing semiconductor being located at an interface between said ~~electron conductor~~ n-type semiconductor and said ~~hole conductor~~ p-type semiconductor, characterised in that said ~~hole conductor~~ p-type semiconductor ~~is being~~ in the solid state, ~~in that~~ said sensitizing semiconductor ~~is in a form~~ consisting of individual particles adsorbed at the surface of said ~~electron conductor~~ n-type semiconductor, said individual particles being quantum dots ~~and in that said p-n heterojunction comprises,~~ with a plurality of individual point-contact ~~heterojunctions~~ junctions between said quantum dots and said ~~electron conductor~~ n-type semiconductor on one hand and said quantum dots and said ~~hole conductor~~ p-type semiconductor on the other hand.

5. (canceled)

C² 6. (currently amended) A heterojunction as claimed in claim 5 1, characterised in that said n-type semiconductor is a ceramic made of finely divided large band gap metal oxide.

C2
(cont)

7. (currently amended) A heterojunction as claimed in claim 1, characterised in that said ~~electron conductor~~ n-type semiconductor is nanocrystalline TiO_2 .

8. (currently amended) A heterojunction as claimed in claim 1, characterised in that said ~~hole conductor~~ p-type semiconductor is an inorganic hole transporting solid compound.

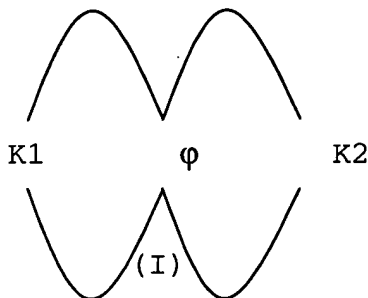
C3

9. (currently amended) A heterojunction as claimed in claim 1, characterised in that said ~~hole conductor~~ p-type semiconductor is an amorphous reversibly oxydisable organic or organometallic compound.

10. A heterojunction as claimed in claim 1, characterised in that said ~~hole conductor~~ is a polymer.

C4

11. (currently amended) A heterojunction as claimed in claim 1, characterised in that said ~~hole conductor~~ p-type semiconductor is selected from the group consisting of Spiro and Heterospirocompounds of general formula (I),



wherein ϕ is one of C, Si, Ge or Sn, and K1 and K2 are independently one from the other conjugated systems.

C4
Cont. 12. (currently amended) A heterojunction as claimed in claim 11, wherein said ~~hole-conductor~~ p-type semiconductor is OMeTAD.

13. (currently amended) A heterojunction as claimed in claim 4 1, wherein said quantum dots are particles consisting of PbS, CdS, Bi₂S₃, Sb₂S₃, Ag₂S, InAs, InP, CdTe, CdSe or HgTe or solid solutions of HgTe/CdTe or HrSe/CdSe.

14. A solid state sensitized photovoltaic cell comprising a solid state p-n heterojunction as claimed in claim 1.

15. A cell as claimed in claim 14, characterised in that it comprises

a transparent first electrode,

a said solid state p-n heterojunction and

a second electrode.

16. A cell as claimed in claim 15, further comprising a dense semiconductive layer between said first electrode and said solid state p-n heterojunction.

C5 17. (currently amended) A cell as claimed in claim 14, characterised in that said solid state p-n heterojunction is obtained by forming quantum dots on the surface of said ~~electron conductor~~ n-type semiconductor by ~~at least more than one~~ deposition treatment and less than 10 deposition treatments, before providing said ~~hole-conductor~~ p-type semiconductor to said layered heterojunction.

18. (canceled) ✓